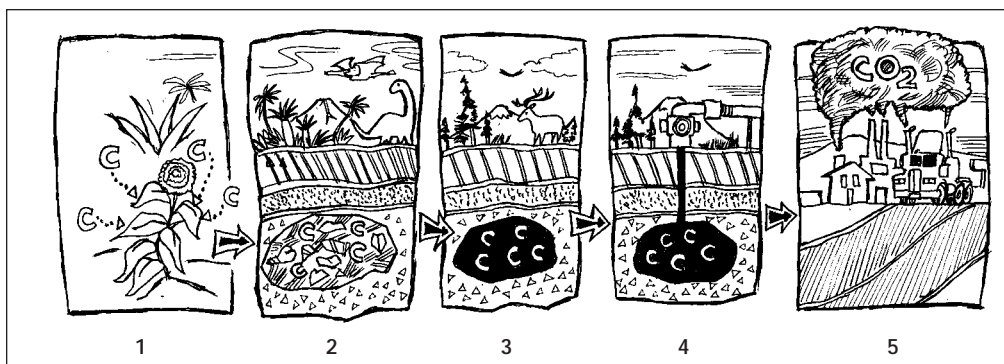
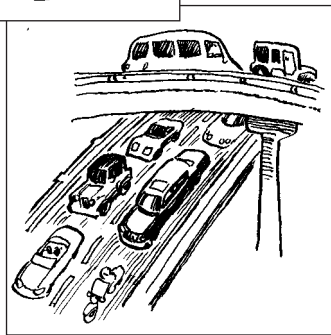


Are Humans Changing Climate?



- (1) Plants removed carbon dioxide from the air.
- (2) When the plants died, they were buried in the earth.
- (3) After millions of years, their remains turned into coal and oil.
- (4) People mine the earth for coal and oil, which are called "fossil fuels."
- (5) When people burn fossil fuels, they send carbon dioxide and other greenhouse gases into the air.



It may seem hard to believe that humans can actually change the earth's climate. But more than 2,000 of the world's leading climate scientists are convinced that human activities already are making our planet warmer.

In 1896, Svante Arrhenius, a Swedish chemist, predicted that industrial activity would eventually have an impact on global climate. During Arrhenius' lifetime, the Industrial Revolution already had begun to transform human behavior.

Before the Industrial Revolution, which started around 1750, the economy depended mostly on small-scale agriculture and commerce. Subsequently, advances in technology, large-scale construction of factories, massive manufacturing, and large-scale mechanized agriculture led to increased pollution and the production of greenhouse gases like carbon dioxide and methane.

Carbon Dioxide

Carbon dioxide (CO_2) is a significant greenhouse gas. Over millions of years, trillions of tons of carbon were taken out of the atmosphere by plants and buried in sediments that eventually became deposits of coal, oil, or natural gas. During the last two centuries, humans have used these fossil fuel resources at an increasing rate as an economical source of energy.

Today humanity releases about 5.5 billion tons of carbon to the atmosphere every year by burning fossil fuels. Approximately another 1.5 billion tons per year are released through land use changes such as deforestation. When trees are cut, they stop absorbing carbon. If the trees are then burned, the carbon is immediately released back to the atmosphere. These releases result in an increase of atmospheric carbon dioxide of about 0.5 percent per year. Since pre-industrial times, the concentration of atmospheric CO_2 has increased by 30 percent.

Methane

Methane, another greenhouse gas, is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from the raising of livestock and the decomposition of organic wastes in municipal solid waste landfills.

What Are Carbon Sinks?

You might want to think of carbon sinks as "carbon sponges." Carbon sinks are reservoirs, such as forests and oceans, that can take in and store carbon from the air. Carbon sinks can serve to partially offset greenhouse gas emissions. For example, because trees absorb carbon, planting trees will in turn reduce the amount of greenhouse gases in the atmosphere.

How Do We Do It?

It is easy to blame things like deforestation and factories for the release of CO_2 into the atmosphere. But the fact is, our daily activities also contribute to CO_2 emissions. Every time we drive or use electric appliances, or heat or cool our homes, we add greenhouse gases to the atmosphere.



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